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| APPLICATION NO.       | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------------|-------------|----------------------|---------------------|------------------|
| 10/663,129            | 09/16/2003  | Xinoliang Gao        | NOVA 9246           | 4004             |
| 1338                  | 7590        | 03/04/2005           |                     |                  |
| KENNETH H. JOHNSON    |             |                      | EXAMINER            |                  |
| P.O. BOX 630708       |             |                      | LU, C CAIXIA        |                  |
| HOUSTON, TX 772630000 |             |                      | ART UNIT            | PAPER NUMBER     |
|                       |             |                      | 1713                |                  |

DATE MAILED: 03/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                       |                  |
|------------------------------|-----------------------|------------------|
| <b>Office Action Summary</b> | Application No.       | Applicant(s)     |
|                              | 10/663,129            | GAO ET AL.       |
|                              | Examiner<br>Caixia Lu | Art Unit<br>1713 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) Responsive to communication(s) filed on \_\_\_\_\_.
- 2a) This action is **FINAL**.                                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-4,7-13 and 16-18 is/are rejected.
- 7) Claim(s) 5,6,14 and 15 is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) All    b) Some \* c) None of:  
1. Certified copies of the priority documents have been received.  
2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

|  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>9/16/03</u> . | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
|  | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 3, 4, 12, 13, and 15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

#### **Claims 3 and 12**

Two sets of limitations are used to define ligand "L2" which renders the instant claim indefinite.

#### **Claim 15**

Line 1, the term "catalyst system" should be replaced with --process-- since claim 14 to which claim 15 is dependent on is a process claim.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-3, 7- 9, 10,-13, and 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ward et al. (US 5,939,347).

The instant claims are directed to a catalyst composition and a polymerization process of using such, wherein the catalyst composition comprising a Group 4

metallocene complex, a solid zirconium acid component and a metal alkyl such as aluminum alkyl.

Ward's working examples, such as Example 4 of col. 11, demonstrate a olefin polymerization process in the presence of a catalyst composition comprising Cp<sub>2</sub>ZrMe<sub>2</sub>, triethyl aluminum and silica support. Ward also teaches that ZrO<sub>2</sub> (solid zirconium acid component) can be used as the catalyst carrier (col. 3, line 66).

Thus, it would have been obvious to a skilled artisan at the time the invention was made to employ Ward's teaching to provide a catalyst composition by using a ZrO<sub>2</sub> support since such is within the scope of patentee's invention and in the absence of any showing criticality and unexpected results.

Claims 1-4, 7-13 and 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stephan et al. (US 5,965,677).

Stephan's working examples, such as Examples 2-4 of col. 12, demonstrate a olefin polymerization process in the presence of a catalyst composition comprising phosphinimine titanocene, tri-isobutyl aluminum and a treated silica support. Ward also teaches that zirconia (solid zirconium acid component) can be used as the catalyst carrier (col. 6, lines 54-57).

Thus, it would have been obvious to a skilled artisan at the time the invention was made to employ Stephan's teaching to provide a catalyst composition by using a zirconia support since such is within the scope of patentee's invention and in the absence of any showing criticality and unexpected results.

***Allowable Subject Matter***

5. Claims 5-6 and 14-15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Furthermore, claim 15 need to be rewritten to overcome the rejection under 35 U.S.C. 112, second paragraph as set forth above.

The cited reference does not teach or reasonably suggest the zirconium acid as defined in the instant claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Caixia Lu whose telephone number is (571) 272-1106. The examiner can normally be reached from 9:00 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful and the matter is urgent, the examiner's supervisor, David Wu, can be reached at (571) 272-1114. The fax numbers for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-1700.

*Caixia Lu*  
Caixia Lu, Ph. D.  
Primary Examiner  
March 2, 2005